Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

Synthetic Minor/Title V Renewal Draft No. V-05-080
Bluegrass Generating Company, LLC
3095 Commerce Parkway.
LaGrange, KY 40031
December 21, 2005
Timothy J. Rust, Reviewer

Source I.D. #: 21-185-00036
Source A. I. #: 39541
Activity #: APE20050002

SOURCE DESCRIPTION

Bluegrass Generating Company, Inc. has applied to the Division for Air Quality for the renewal of their Title V and Acid Rain permits (V-00-052) for the operation of three existing gas fired simple cycle combustion turbines for peak electric generation located in Oldham County, Kentucky. The facility has three (3) Siemens-Westinghouse 501FD natural gas fired simple cycle combustion turbines, Emission Units 01 thru 03, and one Gas Tech Model #2133, 5 mmBtu/hr natural gas Heater, Emission Unit 04. Each of the combustion turbines are rated at 2076 mmBtu/hr heat input capacity at 208 MW output and are equipped with Dry-Low NOx burners and water injection. Additionally EU01 and EU02 are equipped with Hot Selective Catalytic Reduction (SCR) Units that may be utilized by the Company at their discretion for added NOx control. This facility is classified as a synthetic minor due to its federally enforceable limits on emissions of Nitrogen Oxides (NOx) and Carbon Monoxide (CO).

The Division received a Title V renewal application on 10/25/2005, an Acid Rain renewal application on 04/13/2005, and a NOx budget application on 07/16/2003. No changes to the facility or operation have occurred since issuance of permit V-00-052. The Division will issue a Synthetic Minor/Title V Renewal Permit as # V-05-080 to include the Acid Rain Renewal Permit and the NOx Budget Permit.

APLLICABLE REGULATIONS

401 KAR 51:160	NO_x requirements for large utility and industrial boilers, incorporating by reference 40 CFR 96.
401 KAR 52:060	Acid rain permits, incorporating by reference the federal acid rain provisions as codified in 40 CFR Parts 72 to 78.
401 KAR 60:005	New Source Performance Standards, incorporating by reference 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines, for emissions unit with a heat input at peak load equal to or greater than 10 mmBtu/hour for which construction commenced after October 3, 1977, and 40 CFR 60, Subpart A, General Provisions.
40 CFR Part 64	Compliance Assurance Monitoring (CAM) (for Nitrogen Oxides)
40 CFR Part 75	Continuous Emission Monitoring (CEM)

COMMENTS:

No units have applicable NO_x limits set by 40 CFR Part 76.

Pursuant to 401 KAR 60:005, incorporating by reference 40 CFR 60.332, the maximum concentration of NO_x shall not exceed 111 ppmdv @ 15% O_2, in any three-hour rolling average. For compliance with the NO_x emission limits, the permittee will monitor emissions by CEMS that meet the requirements of 40 CFR 60, Subpart GG, and 40 CFR, Part 75.

Pursuant to 401 KAR 60:005, incorporating by reference 40 CFR 60.333 the permittee shall either not discharge any gases into the atmosphere which contain sulfur dioxide (SO_2) in excess of 0.015 percent by volume at 15 percent oxygen, on a dry basis, or not burn any fuel which contains sulfur in excess of 0.8 percent by weight. For compliance with the SO_2 emission limits the permittee shall monitor the total sulfur content of the fuel being fired in each of the turbines.

To preclude 401 KAR 51:017, Carbon Monoxide (CO) emissions shall not exceed 50 ppm in any three-hour average except during start-up and shutdown periods. The start-up and shutdown emission calculation should be based on the vendor recommended emission rate. The CO emissions from the source during start-up and shutdown shall be included in the total emission cap of 245 tons per year.

Pursuant to 40 CFR 60.334(h)(4), for which a custom fuel monitoring schedule has been approved, the owner or operator may continue monitoring on this schedule. Therefore, according to the current custom monitoring schedule, the sulfur content of the fuel shall be determined twice per annum. This monitoring shall be conducted during the first and third quarters of each calendar year.

Pursuant to 40 CFR 60.334(b), nitrogen oxides CEM shall be used in lieu of the water to fuel monitoring system for reporting excess emissions. The CEM emission rates for NO_X shall be corrected to ISO conditions only for any stack test demonstrating compliance with the NO_X standard established in the permit.

The permittee has completed all initial performance tests required by 40 CFR 60, Standards of performance for new stationary sources (NSPS). The turbines have not been operated to maximum capacity. Due to the low utilization of the units, no additional stack testing will be required during the life of this five-year permit unless there are deviations from the permit requirements, at which time stack tests may be required to demonstrate compliance. The permittee shall monitor, record, and report all applicable requirements for each unit, pursuant to 40 CFR 60, Subpart GG.

EMISSION AND OPERATING CAPS DESCRIPTION:

The source is a synthetic minor because potential emissions of greater than 250 tons per year are possible without the emissions cap in place for nitrogen oxides and carbon monoxide. The permittee has agreed to a source-wide emissions cap of 95 tons per year and 245 tons per year for both nitrogen oxides and carbon monoxide respectively to preclude 401 KAR 51:052 Review of new sources in or impacting upon nonattainment areas and 401 KAR 51:017, Prevention of significant deterioration of air quality (PSD) for all combustion turbines, natural gas heater, and insignificant activities, based on any 12 consecutive months. The permittee will assure compliance for each pollutant with use of continuous emission monitors and calculation procedures based on EPA methods to convert combustion turbine monitored concentrations to mass per unit time emission levels. In addition, there will be weekly monitoring of the hours of

EMISSION AND OPERATING CAPS DESCRIPTION (CONTINUED):

operation of each combustion turbine, monthly monitoring of hours of operation for the gas heater, and monthly tracking and totaling emissions on a rolling basis. Hazardous air pollutant (HAP) emissions are estimated to be less than 10 tons/year of a single HAP, and less than 25 tons/year of any combination of HAPs. To maintain the emissions caps for nitrogen oxides and carbon monoxide, operating hours for all turbines shall not exceed 4757 hours during any consecutive twelve (12) month total. The permittee may assure compliance by calculating HAP emissions and tracking and totaling emissions assuring Title V thresholds are not exceeded. For the acid rain permit, the number of allowances allocated to Phase II affected units by the U.S. EPA may change under 40 CFR part 73. In addition, the number of allowances actually held by an affected source in a unit account may differ from the number allocated by U. S. EPA. Neither of the aforementioned conditions necessitates a revision to the unit SO_2 allowance allocations identified in this permit (See 40 CFR 72.84).

CONTROL DEVICE REQUIREMENT:

The permittee will determine SO_2 emissions by using the heat input calculated using a certified flow monitoring system, and a certified diluent monitor, in conjunction with the default SO_2 emission rate for pipeline natural gas from Section 2.3.3 of Appendix D and equation F-23 in Appendix F as specified in 40 CFR Part 75. The permittee will assure continuing compliance with the nitrogen oxide standard using CEM data as an indicator as described in the permit. The permittee shall use Nitrogen Oxides (NO_X) CEMs as continuous compliance determination methods consistent with 40 CFR 64.4 (d) for NO_X. The turbines will be equipped with low NOx burners and water injection, however, alternative control of high temperature (SCR) Selective Catalytic Reduction will be interchanged for nitrogen oxide (NO_x) emission control on EU 01 and EU 02. The permittee has the option to apply or not to apply high temperature (SCR) Selective Catalytic Reduction for nitrogen oxide NOx control in its operation. The NOx emissions limitations shall not exceed permit limit when SCR is not in use. The total emission cap for the facility shall not exceed the limit established in Section D of the Title V permit. In order to comply with 40 CFR Part 75, the permittee will employ a CEM system to measure CO_2, NO_x and O_2.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.